

Claims

5 1. A method to elicit an immune response against influenza in a subject which method comprises administering to said subject an amount of influenza vaccine effective to elicit said response;

said influenza vaccine comprising at least one influenza antigen formulated with proteosomes in the substantial absence of detergent, wherein the formulation ratio of proteosomes to influenza antigen is greater than 1:1.

10 2. The method of claim 1 wherein the subject is human.

10 3. The method of claim 1 wherein said administering is by an intranasal route.

14 4. The method of claim 1 wherein said administering is by a parenteral route.

14 5. The method of claim 1 wherein said administering is by an intramuscular injection.

15 6. The method of claim 1 wherein said vaccine is multivalent.

15 7. The method of claim 1 wherein said vaccine comprises one influenza antigen.

19 8. A method for treating infection in an animal comprising administering to the animal in need thereof a composition prepared by a method which comprises:

20 providing a mixture of at least one viral protein antigen with a proteosome preparation in the presence of detergent, wherein the ratio of proteosomes to antigen is greater than 1:1;

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-antigen composition, and
formulating said composition into a vaccine.

5 9. A method for treating infection in an animal comprising administering to the animal in need thereof a composition prepared by a method which comprises:

providing a mixture of at least one infective protein antigen with a proteosome preparation in the presence of a detergent wherein the ratio of proteosomes to antigen is greater than 1:1;

10 removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-antigen composition, and
formulating said composition into a vaccine.

10. A method for treating infection in an animal comprising administering to the animal in need thereof a composition prepared by a method which comprises:

15 providing a mixture of at least two viral protein antigens to a proteosome preparation in the presence of detergent wherein the ratio of proteosomes to antigens is greater than 1:1; and

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-multivalent antigen composition, and
20 formulating said composition into a vaccine.

11. A method for treating infection in an animal comprising administering to the animal in need thereof a composition prepared by a method which comprises:

25 providing a mixture of at least two infective protein antigens to a proteosome preparation in the presence of detergent wherein the ratio of proteosomes to infective antigens is greater than 1:1; and

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-multivalent antigen composition, and
formulating said composition into a vaccine.

5 12. A method for treating infection in an animal comprising administering to the animal in need thereof a composition effective in shifting an immune response against infection from a Type 2 response toward a Type 1 response, which composition is prepared by a method which comprises:

10 providing a mixture of at least one infective protein antigen with a proteosome preparation in the presence of detergent wherein the ratio of proteosomes to infective antigens is greater than 1:1;

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-antigen composition; and
formulating said composition into a vaccine.